CLAIMS

What is claimed is:

1. An apparatus, comprising:

a thermosiphon having an evaporator portion coupled to a first surface of a heat source and a condenser portion coupled to the evaporator portion distal from the first surface of the heat source;

at least one thermoelectric element coupled to the condenser portion of the thermosiphon; and

a remote heat exchanger coupled to the at least one thermoelectric element.

2. The apparatus of claim 1, wherein the evaporator portion comprises:

an enhanced boiling structure at a base of the evaporator portion opposite the first surface of the heat source; and

an attachment base to couple the thermosiphon to the heat source.

3. The apparatus of claim 1, wherein the condenser portion comprises:

a concave base coupled to the evaporator portion;

a first condenser arm coupled to a proximal portion of the concave base; and

a second condenser arm coupled to a distal portion of the concave base opposite the first condenser arm.

4. The apparatus of claim 1, wherein the at least one thermoelectric element further comprises:

a first pair of thermoelectric elements coupled to opposed surfaces of a first condenser arm of the condenser portion of the thermosiphon; and

a second pair of thermoelectric elements coupled to opposed surfaces of a second condenser arm of the thermosiphon.

5. The apparatus of claim 1, wherein the remote heat exchanger comprises:

a plurality of fins coupled to an exposed surface of the at least one thermoelectric element.

6. The apparatus of claim 1, further comprising:

a device to subject the remote heat exchanger and an exposed surface of the at least one thermoelectric element to blown, ambient temperature air.

7. The apparatus of claim 1, wherein the evaporator portion of the thermosiphon is located within a one rack unit (1U) server chassis and wherein the condenser portion of the thermosiphon, the at least one thermoelectric element and the remote heat exchanger are located outside the 1U server chassis.

8. The apparatus of claim 2, wherein the enhanced boiling structure comprises:

a uniform thin film of porous coating formed on the base of the evaporator portion.

9. The apparatus of claim 1, wherein the at least one thermoelectric element is to transfer heat from an unexposed surface of the thermoelectric element, heated by a surface of the condenser portion, toward an exposed surface of the thermoelectric element, facing the heat exchanger, to reduce the temperature of the condenser portion of the thermosiphon.

10. The apparatus of claim 1, wherein the heat source comprises an integrated circuit.

11. A system comprising:

a processor;

a thermosiphon having an evaporator portion coupled to a first surface of a processor and a condenser portion coupled to the evaporator portion distal from a first surface of the processor;

at least one thermoelectric element coupled to the condenser portion of the thermosiphon; and

a remote heat exchanger coupled to the at least one thermoelectric element.

12. The system of claim 11, wherein the evaporator portion comprises:

an enhanced boiling structure at a base of the evaporator opposite the first surface of the heat source.

13. The system of claim 11, wherein the condenser portion comprises:

a concave base coupled to the evaporator portion;

a first condenser arm coupled to a proximal portion of the concave base; and

a second condenser arm coupled to a distal portion of the concave base opposite the first condenser arm.

14. The system of claim 11, wherein the at least one thermoelectric element comprises:

a first pair of thermoelectric elements coupled to opposed surfaces of a first condenser arm of the condenser portion of the thermosiphon; and

a second pair of thermoelectric elements coupled to opposed surfaces of a second condenser arm of the thermosiphon.

15. The system of claim 11, wherein the remote heat exchanger comprises:

a plurality of fins coupled to an exposed surface of the at least one thermoelectric element.

16 The system of claim 11, further comprising:

a device to subject the remote heat exchanger and an exposed surface of the at least one thermoelectric element to blown, ambient temperature air.

17. The system of claim 11, wherein the evaporator portion of the thermosiphon is located within a server chassis and wherein the condenser portion of the thermosiphon, the one or more thermoelectric elements and the remote heat exchanger are located outside the server chassis; and

wherein the server chassis is a one rack unit (1U) server chassis.

18. The system of claim 11, wherein the evaporator portion of the thermosiphon is located within a server chassis and wherein the condenser portion of the thermosiphon, the one or more thermoelectric elements and the remote heat exchanger are located outside the server chassis; and

wherein the server chassis is a blade server chassis.

19. The system of claim 11, wherein the at least one thermoelectric element is to transfer heat from an unexposed surface of the thermoelectric element, a heated by a surface of the condenser portion, toward an exposed surface of the thermoelectric element, facing the heat exchanger, to reduce the temperature of the condenser portion of the thermosiphon.

20. The system of claim 11, further comprising:

a double data rate (DDR), synchronous dynamic random access memory (SDRAM) (DDR SDRAM);

a memory controller coupled between the processor and the DDR SDRAM; and

an input/output controller coupled to the memory controller.

21. The system of claim 11, wherein the processor is a graphics processor.

22. The system of claim 11, wherein the processor is a one rack unit (1U) processor.

23. The system of claim 11, wherein the processor is a blade server processor.

24. The apparatus of claim 12, wherein the enhanced boiling structure comprises:

a uniform thin film of porous coating formed on the base of the evaporator portion.

25. A method comprising:

boiling a liquid within an evaporator portion of a thermosiphon to form a vapor using heat from a heat source;

transferring heat from a surface of a condenser portion of the thermosiphon to exposed surfaces of one or more thermoelectric elements to reduce a temperature of the condenser portion of the thermosiphon; and

subjecting the exposed surfaces of the one or more thermoelectric elements to ambient temperature, blown air to dissipate heat from the heat source.

26. The method of claim 25, wherein boiling comprises:

heating an enhanced boiling structure at the base of the evaporator portion of the thermosiphon;

evaporating liquid within the evaporator portion of the thermosiphon to cause the vapor to occupy the condenser portion of the thermosiphon; and

heating, by the vapor, the surface of the condenser portion to cause unexposed surfaces of the one or more thermoelectric elements to absorb the heat from the surface of the condenser portion of the thermosiphon.

27. The method of claim 25, wherein transferring the heat comprises:

powering the one or more thermoelectric elements;

transmitting, by each respective thermoelectric element, heat from an unexposed surface of each respective thermoelectric element to an exposed surface of the respective thermoelectric element; and

reducing a temperature of the condenser portion of the thermosiphon; and

decreasing an operating temperature of the fluid within the evaporation portion of the thermosiphon.

28. The method of claim 25, wherein subjecting the exposed surfaces comprises:

operating a fan to blow room temperature air through a heat exchanger coupled to the exposed surfaces of the one or more thermoelectric elements.

29. The method of claim 25, wherein transferring heat comprises:

reducing a temperature within the condenser portion of the thermosiphon;

converting vapor within the condenser portion of the thermosiphon into a liquid; and

causing the liquid to occupy the evaporator portion of the thermosiphon to prohibit complete evaporation of liquid within the evaporator portion of the thermosiphon.